

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)



Applicant's or agent's file reference P0851	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB 03/04065	International filing date (day/month/year) 22.09.2003	Priority date (day/month/year) 02.10.2002
International Patent Classification (IPC) or both national classification and IPC B60R15/04, B60R15/04		
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- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 8 sheets.

- This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 26.04.2004	Date of completion of this report 21.06.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Schombacher, H Telephone No. +49 89 2399-7284 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/GB 03/04065**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1, 4-15 as originally filed
2, 3 received on 26.04.2004 with letter of 23.04.2004

Claims, Numbers

1-37 received on 26.04.2004 with letter of 23.04.2004

Drawings, Sheets

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-37
	No: Claims	
Inventive step (IS)	Yes: Claims	1-37
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-37
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document/s/:

- D1: PATENT ABSTRACTS OF JAPAN vol. 2000, no. 09, 13 October 2000 (2000-10-13) & JP 2000 153741 A (KANTO AUTO WORKS LTD), 6 June 2000 (2000-06-06)
- D2: US-A-4 909 268 (MAGGIO JOHN J) 20 March 1990 (1990-03-20)
- D3: EP-A-0 812 732 (KUEK MICHAEL SZE CHUAN) 17 December 1997 (1997-12-17)
- D4: DE 198 15 880 C (GRATZA PETER ;PAPPERS RUDOLF (DE)) 7 October 1999 (1999-10-07)
- D5: US-A-4 785 483 (WISE PAUL H) 22 November 1988 (1988-11-22)

Document D1, which is considered to represent the most relevant state of the art, discloses a hygiene apparatus for use within the space within a vehicle that comprises a collapsible flexible membrane substantially impermeable to air, whereby the flexible membrane is adapted in use to enclose a portion of the space within the vehicle and to separate the portion of space enclosed by the flexible membrane from a portion of the space within the vehicle provided outside the flexible membrane from which the subject-matter of claim 1 differs in that means is provided to maintain an air pressure difference between the enclosed portion and the vehicle interior.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as to provide a temporarily deployable hygiene apparatus for use within a vehicle that separates the space used for hygienic purposes from the rest interior.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) as the prior art does neither disclose nor render obvious the solution proposed in claim 1.

Claims 2 -38 are dependent on claim 1 and as such also meet the requirements of the

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PCT with respect to novelty and inventive step.

It is therefore an object of the present invention to provide a hygiene apparatus and a vehicle incorporating such a hygiene apparatus which overcomes or minimises these problems.

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According to one aspect of the present invention there is provided a hygiene apparatus adapted for use within the space within a vehicle comprising a collapsible flexible membrane substantially impermeable to air, the flexible
10 membrane being adapted in use to enclose a portion of the space within the vehicle and to separate the said portion of space enclosed by the flexible membrane from a portion of the space within the vehicle provided outside the flexible membrane, wherein means is provided to maintain an
15 air pressure difference between the portion of the space enclosed by the flexible membrane and the portion of the space within the vehicle but outside the flexible membrane.

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According to another aspect of the present invention there is provided a vehicle provided with a hygiene apparatus as hereinbefore defined.

The flexible membrane may be of bag-form.

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The air pressure within the portion of the space enclosed by the flexible membrane may be maintained above atmospheric pressure. Alternatively, the air pressure within the portion of the space enclosed by the flexible membrane may be maintained below atmospheric pressure.

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The means to maintain an air pressure difference may be an air pumping device.

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The air pumping device may be adapted to pump air from a region exterior of the vehicle into the portion of the

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space enclosed by the flexible membrane. Alternatively, the air pumping device may be adapted to pump air from the portion of the space within the vehicle but outside the flexible membrane into the portion of the space enclosed by the flexible membrane.

Additionally or alternatively, the air pumping device may be adapted to pump air from the portion of the space enclosed by the flexible membrane to a region exterior of the vehicle.

The flexible membrane may be provided with attachment means for securing, either directly or indirectly, to an inner surface of the vehicle. The attachment means may be selected from straps, hook and loop material, hook and eye fasteners, magnets and combinations thereof.

The flexible membrane may be provided with supporting members. The supporting members may be in the form of inflatable tubular members and/or may be in the form of collapsible supporting rods.

The flexible membrane may be opaque or may be translucent.

Where necessary, lighting means may be provided in the form of at least one panel selected from translucent and transparent material provided in the flexible membrane.

Additionally or alternatively, lighting means may be provided in the form of a light source, for example a battery-powered lamp, provided within the space enclosed by the flexible membrane.

The flexible membrane may comprise a plastics material of sheet or fibre form and/or natural fibres.

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CLAIMS

1. A hygiene apparatus (1) adapted for use within the space within a vehicle (2) comprising a collapsible flexible membrane (3) substantially impermeable to air, the flexible membrane (3) being adapted in use to enclose a portion of the space within the vehicle (2) and to separate the said portion of space enclosed by the flexible membrane (3) from a portion of the space within the vehicle provided outside the flexible membrane (3), characterised in that means (11) is provided to maintain an air pressure difference between the portion of the space enclosed by the flexible membrane (3) and the portion of the space within the vehicle but outside the flexible membrane (3).

2. A hygiene apparatus as claimed in claim 1, characterised in that the flexible membrane (3) is of bag-form

3. A hygiene apparatus as claimed in claim 1 or 2, characterised in that the air pressure within the portion of the space enclosed by the flexible membrane (3) is maintained above atmospheric pressure.

4. A hygiene apparatus as claimed in claim 1 or 2, characterised in that the air pressure within the portion of the space enclosed by the flexible membrane (3) is maintained below atmospheric pressure.

5. A hygiene apparatus as claimed in any preceding claim, characterised in that the means to maintain an air pressure difference is an air pumping device (11).

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5 6. A hygiene apparatus as claimed in claim 5, characterised in the air pumping device (11) is adapted to pump air from a region exterior of the vehicle into the portion of the space enclosed by the flexible membrane (3).

10 7. A hygiene apparatus as claimed in claim 5, characterised in the air pumping device (11) is adapted to pump air from the portion of the space within the vehicle but outside the flexible membrane (3) into the portion of the space enclosed by the flexible membrane (3).

15 8. A hygiene apparatus as claimed in claim 5, 6 or 7, characterised in that the air pumping device is adapted to pump air from the portion of the space enclosed by the flexible membrane (3) to a region exterior of the vehicle.

20 9. A hygiene apparatus as claimed in any preceding claim, characterised in that the flexible membrane (3) is provided with attachment means (5) for securing directly to an inner surface of the vehicle.

25 10. A hygiene apparatus as claimed in any one of claims 1 to 8, characterised in that the flexible membrane (3) is provided with attachment means (5) for securing indirectly to an inner surface of the vehicle.

30 11. A hygiene apparatus as claimed in claim 9 or 10, characterised in that the attachment means (5) are selected from straps, hook and loop material, hook and eye fasteners, magnets and combinations thereof.

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12. A hygiene apparatus as claimed in any preceding claim, characterised in that the flexible membrane (3) is provided with supporting members (13).

5 13. A hygiene apparatus as claimed in claim 12, characterised in that the supporting members (13) are in the form of inflatable tubular members.

10 14. A hygiene apparatus as claimed in claim 12 or 13, characterised in that the supporting members (13) are in the form of collapsible supporting rods.

15 15. A hygiene apparatus as claimed in any preceding claim, characterised in that the flexible membrane (3) is opaque.

20 16. A hygiene apparatus as claimed in any one of claims 1 to 15, characterised in that the flexible membrane (3) is translucent.

17. A hygiene apparatus as claimed in any preceding claim, characterised in that lighting means (9) is provided in the flexible membrane (3).

25 18. A hygiene apparatus as claimed in claim 17, characterised in that the lighting means is in the form of at least one panel (9) selected from translucent and transparent material.

30 19. A hygiene apparatus as claimed in any preceding claim, characterised in that lighting means is provided in the form of a light source provided within the space enclosed by the flexible membrane (3).

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20. A hygiene apparatus as claimed in claim 19, characterised in that the light source is a battery-powered lamp.

5 21. A hygiene apparatus as claimed in any preceding claim, characterised in that the flexible membrane (3) comprises a plastics material of sheet or fibre form.

10 22. A hygiene apparatus as claimed in any preceding claim, characterised in that the flexible membrane (3) comprises natural fibres.

15 23. A hygiene apparatus as claimed in any preceding claim, characterised in that the flexible membrane (3) is provided with a resealable opening (7) suitable for a user to enter and exit the space enclosed by the flexible membrane (3).

20 24. A hygiene apparatus as claimed in any preceding claim, characterised in that the apparatus includes a storage unit (21) adapted to be located within the vehicle for containing the flexible membrane (3) when the flexible membrane (3) is not in use.

25 25. A hygiene apparatus as claimed in any preceding claim, characterised in that sanitation apparatus is provided in the space enclosed by the flexible membrane (3).

30 26. A hygiene apparatus as claimed in claim 25, characterised in that the sanitation apparatus is a toilet.

35 27. A hygiene apparatus as claimed in any preceding claim, characterised in that means is provided to prevent

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the transmission of undesirable noise from the space enclosed by the flexible membrane (3) to a region outside the flexible membrane (3).

5 28. A hygiene apparatus as claimed in claim 27, characterised in that the means to prevent the transmission of undesirable noise comprises an acoustically impermeable material forming the flexible membrane (3).

10 29. A hygiene apparatus as claimed in claim 27, characterised in that the means to prevent the transmission of undesirable noise comprises a noise generator provided within the space enclosed by the flexible membrane (3) to mask the undesirable noise.

15 30. A hygiene apparatus as claimed in any preceding claim, characterised in that means is provided to prevent the transmission of undesirable odours from the space enclosed by the flexible membrane (3) to a region outside the flexible membrane (3).

20 31. A hygiene apparatus as claimed in claim 30, characterised in that the means to prevent the transmission of undesirable odours comprises an odour absorber.

25 32. A hygiene apparatus as claimed in claim 31, characterised in that the odour absorber is a chemical scrubber.

30 33. A hygiene apparatus as claimed in claim 30, characterised in that the means to prevent the transmission of undesirable odours comprises a desirable

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odour generator provided within the space enclosed by the flexible membrane (3) to mask the undesirable odour.

5 34. A hygiene apparatus as claimed in any preceding claim, characterised in that means is provided to enable a user to rupture the flexible membrane in the event of an emergency to permit the user to exit the space enclosed by the flexible membrane (3).

10 35. A hygiene apparatus as claimed in claim 34, characterised in that the means to rupture the flexible membrane comprises an openable seam provided in the flexible membrane.

15 36. A hygiene apparatus as claimed in claim 34, characterised in that the means to rupture the flexible membrane comprises a detachable panel provided in the flexible membrane.

20 37. A vehicle incorporating a hygiene apparatus as claimed in any preceding claim.